

Summary -- BKK, Carson

(from DHS
p.e.u. files
"BKK-general")

Background

The BKK, Carson site (known as Bak Disposal Company until 1955) operated as a Class II landfill during 1948 to 1959 in the City of Carson. The City of Carson has applied for hazardous waste property determination for BKK (January 6, 1981). Butler Housing Corporation has also applied for border zone property determination for the proposed construction of a 324-unit condominium on the northeast corner of 190th Street and Avalon Boulevard, approximately 500 feet from the perimeter of waste disposal (December 4, 1981).

Location and Description

The 348-acre site is bounded approximately by Main Street on the west, Avalon Boulevard on the east, 190th Street on the north, and a Los Angeles Department of Water and Power right-of-way on the south. Dominguez Channel and the San Diego Freeway, which run parallel to one another, intersect and divide the site. A tributary of Dominguez Channel also traverses the site.

Current land use on the site includes two golf courses, a park (baseball field, gymnasium, swimming pool, recreation center, tennis court), a restaurant, an airship base (Goodyear Blimp Port), and an apartment complex of approximately 50 units. Some parcels of land remain vacant. Property on the site is owned by various private and governmental entities. A major portion of the site is occupied by a golf course and park owned by the County of Los Angeles (Victoria Golf Course, Victoria Regional Park). Los Angeles County owns other land on the site.

A landfill gas recovery substation that will process gas from the South Bay Drive-In property directly across the street from BKK is planned for the southeast corner of the site. The South Bay Drive-In (formerly Southwest Conservation disposal site) is another City of Carson site for which the Department has received a request for hazardous waste property determination.

Cal Compact, Southwest Conservation, and other completed landfills and industrial disposal sites are adjacent to the site. This may contribute to additional potential contamination of the environment or potential threat to human health and safety and complicates the question of the origin of contamination.

Waste Characteristics

The BKK Class II landfill, the largest in Southern California during its time of operation, accepted liquid and solid chemical wastes from various industries and refineries in the area as well as rubbish and inert materials.

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Hazardous or potentially hazardous materials which were permitted or known to be accepted are listed in Table 1. Refinery wastes from the Shell Dominguez plant -- specifically, still bottoms from the fractionating process -- are known to have been deposited at this site. Although acid sludges were explicitly excluded, "volatile, flammable, or explosive material" could be accepted. Liquids were to be mixed with refuse at a ratio of ten gallons per cubic yard of refuse.

Dominguez Channel received large discharges of liquid industrial wastes from refineries and chemical plants in the vicinity. Outfalls from many of these industries extended directly into the channel.

Table 1

The following hazardous or potentially hazardous wastes have been permitted or are known to have been accepted at BKK, Carson.

<u>Waste</u>	<u>Reference</u>
	Industrial Waste Permit or Amendments
Metals -- including magnesium	7/30/48
Rotary mud	7/30/48
Chemical and industrial wastes -- liquid and solid	10/13/49
(Magnesium prohibited)	(4/20/55)
Mud cake from oil field sumps	4/20/55
Noxious materials -- small quantities	4/20/55
Steel mill slag	4/20/55
Paint sludge from water circulated paint spray booths	9/4/56
Oil-soaked excelsior	9/4/56
Sludge, residue, and grit from Hyperion Wastewater Treatment Plant	2/14/57
Cleanings from petroleum production tanks	1/30/58
Acetylene sludge	1/30/58
Synthetic silicate catalyst	1/30/58

<u>Waste</u>	<u>Reference</u>
Liquid latex waste	1/30/58
Ceramic plant wastes	1/30/58
Printers' ink and small amounts of solvent -- occasional loads	12/29/58
Refinery still bottoms (and other refinery wastes?)	Los Angeles County Engineers memo 1/28/52

Geohydrology/Groundwater Quality

The site is underlain by three of the most important water-bearing zones in the West Coast Basin, the "200-foot gravel", the "400-foot gravel", and the Silverado water-bearing zone. Drinking water is presently derived solely from the Silverado Aquifer, 450 to 700 feet below sea level. Water for other purposes is pumped from the semiperched zones as well as deeper zones. The shallow aquifers are no longer usable as drinking water because of contamination by sea water intrusion, brine, and industrial disposal. The nearest drinking water well is located approximately one mile southeast of the site. Recorded high groundwater elevation in the semiperched zone in the vicinity of the disposal site according to a 1956 Department of Water Resources investigation of the BKK disposal site was 8.0 feet above sea level.

Soils beneath the disposal site are recent alluvial and upper Pleistocene deposits of permeable sand and gravel layers separated by impermeable lenses of silt and clay. Although the impermeable lenses restrict downward percolation, limited lateral migration may occur, or may have occurred, at an area several miles to the southeast where hydraulic continuity exists between the semiperched and deeper groundwater zones.

Potential for existing or future contamination of the semiperched and deeper groundwater zones resulting from disposal activities at the site is high. According to an excerpt from a Los Angeles County Engineers memorandum dated December 7, 1950, excavations for waste disposal were cut to groundwater level, one or two feet above sea level. Liquid and semiliquid industrial wastes would be very likely to either have been deposited at or migrate vertically to groundwater level.

Elevated concentrations of sulfate and dissolved solids have been observed historically at wells and test holes on the site. The 1956 Department of Water Resources investigation of the site revealed concentrations of 262-471 ppm sulfate and 820-1,327 ppm total dissolved solids in semiperched wells; 260-17,510 ppm sulfates and 919-41,900 ppm total dissolved solids were observed in test holes. These levels are indicative of prior disposal of industrial wastes. Several wells which previously existed on the site may have been sources of pollution.

Groundwater movement for the Silverado Aquifer is generally toward the northeast. However, movement within the shallower groundwater zones, which would be the initial point of any potential contamination of deeper zones, cannot be predicted reliably.

Soil, Air, and Public Health

An investigation by the Los Angeles County Office of the Director of Personnel, Environmental Health Section, indicated no relationship between the deaths of several Los Angeles County golf course groundkeepers due to cancer and their employment at Victoria Golf Course. Soil samples taken at a depth of less than one foot at various locations on the golf course indicate concentrations of heavy metals and organophosphates typical of urban environments. The average concentrations of lead, zinc, and nickel were, respectively, 67 ppm, 114 ppm, and 28 ppm. Chromium and cadmium levels were not detectable. These samples were not taken at sufficient depth to encounter landfill material; only cover material was sampled and analyzed. Consequently, no conclusions about material disposed at the site can be drawn from this study. Although air samples were not taken as part of this investigation, direct readings for methane (CH_4) and hydrogen sulfide (H_2S) using traditional industrial hygiene monitors showed insignificant levels.

Various foundation investigations were performed in preparation for actual or proposed development on the site. These studies provide information regarding soil profiles, soil characteristics, fill characteristics, and the boundaries of waste disposal at the locations studied.

Landfill-Related Problems

Victoria Golf Course and Regional Park facilities have been subject to continuing subsidence-related problems. Water line breakage has been a recurring nuisance. No mitigation is currently planned.

Carports associated with the apartment complex have experienced some settlement problems. A gas mitigation plan has recently been prepared by SCS Engineers but has not yet been implemented.

Progress Status: Hazardous Waste and Border Zone Property Determination

Collection of historical data and other information required for preparation of a site digest is nearly complete. We still expect to obtain information from previous owners.

Determination of any health hazard associated with developing the site or property within 2,000 feet of the site will require additional analysis of soil, vapor, and groundwater.

Alternative Sources of Funding for Site Characterization

Butler Housing Corporation, which desires to construct a 324-unit condominium on a 17.5 acre plot within 2,000 feet from the site, has clear financial interest to develop their property as soon as possible. It may be advantageous for them to finance an evaluation of potential human health hazard on and near their property and, perhaps, on some portion of the site itself.